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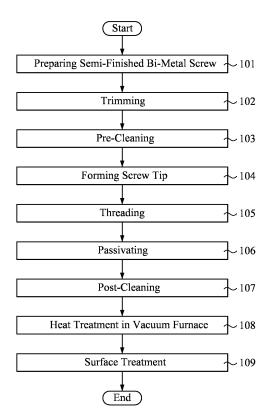
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- (30) Priority: 26.10.2011 TW 100138944
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#### (54) Method of manufacturing Bi-Metal Screw

(57) A method of manufacturing a bi-metal screw includes steps of: forming a semi-finished bi-metal screw by connecting together a shank portion (1) and a rod portion (2); forming a thread (5) on the semi-finished bi-metal screw; performing an post-cleaning process on the semi-finished bi-metal screw with the thread (5); performing a heat treatment on the semi-finished bi-metal screw, which is processed after the post-cleaning process, in a vacuum furnace to obtain a bi-metal screw having good toughness, hardness, and strength; and performing a surface treatment thereon to make the bi-metal screw have ability to resist corrosion, acid, ultraviolet, and the like.





#### **EUROPEAN SEARCH REPORT**

**Application Number** 

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	DOCUMENTS CONSIDE	RED TO BE I	RELEV	ANT		
Category	Citation of document with inc of relevant passa		ropriate,		Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
Х	CN 1 183 326 A (ZHAI 3 June 1998 (1998-00 * abstract; figures	5-03)	[CN])		-10	INV. B23P15/00 F16B25/00
Х	TW 201 115 038 A (SI [TW]) 1 May 2011 (20 * abstract; figures	911-05-01)	CO LTD		-10	
A	EP 0 523 298 A1 (DA 20 January 1993 (199 * page 3, line 2 - example 1 *	93-01-20)	,			
A	JP H10 36945 A (NIP 10 February 1998 (19 * abstract; figures	998-02-10)	IRP)			
А	WO 2004/059230 A1 (INIKOLAEVIC [RU]; OKIANATOLIEVIC [R) 15 A abstract; figure	HLOPKOV ANAT July 2004 (2	OLIY			TECHNICAL FIELDS SEARCHED (IPC)
A	GB 2 006 833 A (DEU 10 May 1979 (1979-09 * page 1, line 103 * page 2, line 40 - figures *	5-10) - line 106 *	,		,9,10	B23P F16B B21K B21H C21D
	The present search report has b	een drawn un for all	claims			
	Place of search	·	pletion of the	search		Examiner
	The Hague		nuary		Pla	stiras, Dimitrios
CATEGORY OF CITED DOCUMENTS  X: particularly relevant if taken alone Y: particularly relevant if combined with another document of the same category A: technological background O: non-written disclosure P: intermediate document		er	T: theory or principle underlying the invention E: earlier patent document, but published on, or after the filing date D: document oited in the application L: document oited for other reasons			
			L : document cited for other reasons			

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#### ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO.

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13-01-2017

10	Patent docun cited in search		Publication date		Patent family member(s)		Publication date	
	CN 1183326	5 A	03-06-1998	NONE				
15	TW 2011150	)38 A	01-05-2011	NONE				
20	EP 0523298	3 A1	20-01-1993	AT CN DE DE DK EP ES US	117742 1068860 69107067 69107067 0523298 0523298 2067872 5417776	A D1 T2 T3 A1 T3	15-02-1995 10-02-1993 09-03-1995 01-06-1995 19-06-1995 20-01-1993 01-04-1995 23-05-1995	
25	JP H103694	15 A	10-02-1998	NONE				
	WO 2004059	9230 A1	15-07-2004	AU WO	2002368520 2004059230		22-07-2004 15-07-2004	
30	GB 2006833	3 A	10-05-1979	AU DE ES FR GB IT	3773478 2831439 473645 2404142 2006833 1100813	A1 A1 A1 A B	10-01-1980 05-04-1979 16-04-1979 20-04-1979 10-05-1979 28-09-1985	
35 40				JP 	S5467529 	A 	31-05-1979	
45								
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	TOTAIN PURSO							
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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82